NNA16574210Q-ALM

Attachment 1 - Specifications

1. General Description

Building on the successful Curiosity Rover landing, Mars 2020 (M2020) will launch a single rover on Mars as a part of the National Aeronautics and Space Administration (NASA) Mars Exploration Program. Each vehicle that lands on Mars provides a unique opportunity to study the atmospheric entry environment. The MEDLI2 project will instrument the heatshield and backshell of the Mars 2020 mission with thermal instruments, including heatflux sensors to measure combined radiative and convective heating during the entry, descent, and landing.

This procurement is for heatflux sensors to be used in environmental development testing; this testing will demonstrate that this type of heatflux sensor can survive and operate during entry, descent, and landing.

2. Heatflux Sensor Requirements

The vendor shall deliver to the MEDLI2 project at NASA Ames Research Center eight (8) heatflux sensors that meet the following requirements:

I. The heatflux sensor shall have a measurement range of 0 - 15 W/cm^2.

II. The heatflux sensor shall have a measurement accuracy of 1 W/cm^2 or better.

III. The heatflux sensor shall have a time response of 50ms or lower.

IV. The heatflux sensor shall have at least 40 mV full scale electrical output at 15 W/cm^2

V. The heatflux shall not require any excitation.

VI. If the heatflux sensor includes a separate temperature measurement, that measurement shall be a thermocouple.

VII. The heatflux sensor shall have 24 AWG stranded lead wires for both the heatflux and thermocouple outputs.

VIII. The heatflux sensor shall have an output impedance of less than or equal to 200 Ohms.

IX. Each heatflux sensor shall have a sensor calibration curve traceable to the National Institute of Standards and Technology.

X. The heatflux sensor shall have flight heritage or employ flight-qualified heatflux sensing technology, in order to mitigate technical and schedule risk.

XI. The heatflux sensor shall conform to the shape shown in Figure 1 below.

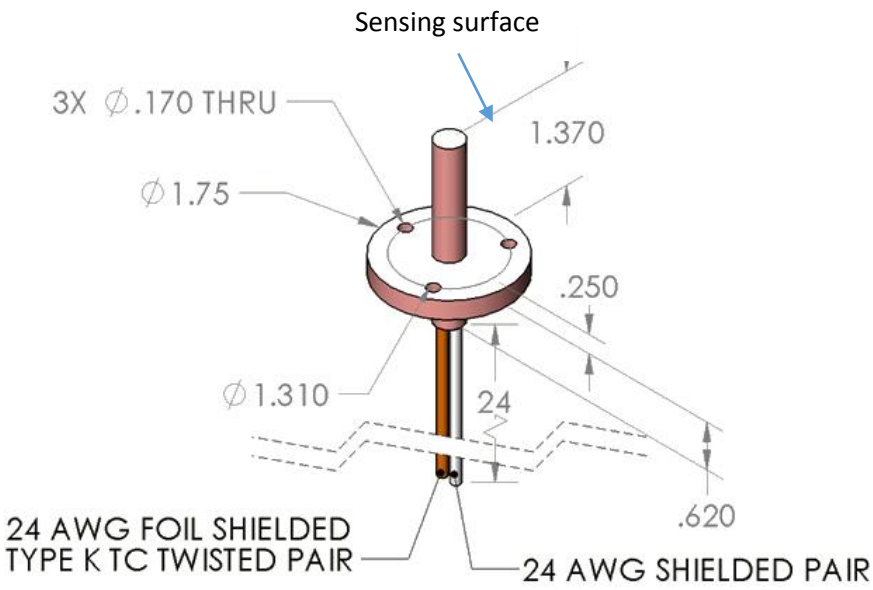

Figure 1 Heatflux sensor configuration. Dimensions in inches.

3. Delivery Schedule

The sensors in this purchase will be used for a NASA Do-No-Harm (DNH) test program, where four of the sensors will be integrated into test panels that will undergo vibration, shock, thermal vacuum, and arc jet testing.

Due to scheduling constraints of the DNH test program, these heatflux sensors are requested for delivery to NASA Ames **by March 28th, 2016.**

If necessary, MEDLI2 can accept delivery of the heatflux sensors in two shipments:

- Five (5) of the sensors are needed by March 28th, 2016 (four for test panel integration with a spare).
- Three (3) of the sensors are needed by July 1st, 2016.

Offerors shall state their ability to meet or exceed these delivery requirements, including the ability to deliver all eight (8) sensors by March 28, 2016.